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New Time Zones for a New Century

How North America can increase both its productivity and its security by streamlining its time zones:

Introduction

Would North Americans-Americans, Canadians and Mexicans in the North American Free Trade Zone- be better off with one less time zone? Reducing the number of time zones from six to five would nearly double the amount of time that North Americans could communicate directly with each other across the Continent. Increasing the synchrony of our existing time zones would enhance communication between organizations and individuals which has the potential of immeasurably improving our security and our productivity

How can it be done? The solution is quite simple and can be found in both the Canadian province of Newfoundland and in India. India encompasses two complete time zones but by moving their clocks back one half hour in the +5 UTC Time Zone and one half hour ahead in the +6 UTC Time Zone, all of India is on a single synchronized time. We simply need to shift the western boundary of each of the Eastern, Central and Mountain Time Zones progressively westward by five degrees of longitude. This would absorb the Pacific Time Zone and would create three new time zones, each 20 degrees wide instead of the current 15 degrees. This would create a time differential of one and a half hours when entering the Atlantic Time Zone (ie UTC -4.5) from the east-- similar to the present situation for Newfoundland.¹ It would also create a 1.5 hour time differential at the International Date Line (12 UTC) which would be inconsequential as there are very few people who reside in this locality.

¹ Gander, Newfoundland is a major international airport which operates successfully in the -3.5 UTC Time Zone.

Most of us take time zones for granted and accept them as inevitable except for our twice yearly ritual when we are told to reset our clocks and watches by an hour as in “spring ahead” and “fall back.” The recent decision by the US Department of Transport to extend daylight saving time by two weeks in the spring and one week in the fall stirred some discussion and debate but most people accepted the federal government’s decision without protest. Canada and Mexico are expected to follow the US on this initiative. We have just accepted the fact that because the earth rotates on its axis once daily and because the differential between day and night varies with the seasons, that the time zones we now use are the best we can devise. We seem to have also accepted the US government’s hypothesis that beginning in April, 2007, extending the period of Daylight saving time three weeks to a month longer will benefit the country from the energy we will save by making greater use of the “saved” daylight.

But wait a minute! Who said we had to accept without question the need for six time zones in the USA and six in Canada (counting of course the half time zone adopted by Newfoundland)?² What about the Chinese and their single time zone for a country slightly wider than the contiguous USA?³ Or India’s amalgamation of two full time zones into a single zone encompassing the entire country? These examples alone should cause us to pause and consider whether we could make better sense of this business of time zones.

Outdated Artifact

Our time zones are an artifact from an earlier age, created prior to the invention and use of electricity. They came into force well before urban street and residential electrical lighting or battery-powered flashlights and bicycle lamps. They were adopted long before automobiles with their 75 thousand candlepower headlights. They were enacted into law fifty years before long distance telephone calls, 75 years before television with its live national sports broadcasts, early morning news and late night talk shows and more than 100 years before email and the Internet.

History

² The United States spans six time zones. It shares the main four time zones with Canada (Eastern Time, Central Time, Mountain Time and Pacific Time). Hawaii-Aleut Time and Alaska Time are separate time zones. Puerto Rico and the Canadian Atlantic Provinces are in the Atlantic Time Zone while the province of Newfoundland and Labrador have created a separate time zone one half hour ahead of their westerly neighbors.

Prior to the construction of the national railroads there was a myriad of local times in use throughout the Continent based on the sun's actual noon apex at any given location. It was the national railroads' need for coordinating their departure and arrival schedules that prompted the move to create a universal method of keeping time. When Sir Sanford Fleming was devising standard time in the early 1880s a proposal was put forward whereby the contiguous USA would be divided into two time zones. The International Prime Meridian Conference in Washington, D.C. however, adopted Universal Standard Time as the international standard on January 1, 1885. This action established four time zones for the contiguous USA and five for Canada and eliminated forever the chaos of recognizing only local time. It was based on the 15 degrees of longitude rule which was developed by dividing the earth's 360 degrees of longitude by 24 hours. The contiguous USA spanning as it does, approximately 58 degrees of longitude was thus divided into four time zones.

There is no reason to accept without question that because the earth has been divided into 24 time zones that we need every one of these time zones. North America just as easily could have been divided into a dozen separate zones if instead of one-hour, half-hour increments had been adopted. These time zones were developed before the world emerged into the modern age. With each passing decade more of us adopt an urban lifestyle and our activities are no longer bound by daylight and dark. Our work days are no longer dictated to by the diurnal or seasonal rhythms of crops or livestock. Farmers no longer light their way after dusk with coal oil lamps on their walk back to darkened farmhouses from dark equipment sheds or barns. Nowadays, practically every barn, farmyard and farmhouse, as most city streets and all houses, shops and offices are fully illuminated by electric lights. Even modern chickens and milk cows in modern facilities are regulated by artificial light and fed by automatic feeders.

Example of recent time zone debate

Perhaps some people worry that our lives would be disrupted if we were to change these zones in any substantial way. The recent Williams County, Kentucky debate about which time zone to use is a recent example of some folks' resistance to change. Much of the state was originally in the Central Time Zone. Over the years, numerous cities and counties in Kentucky adopted Eastern Standard Time leaving many people in Williams County feeling somewhat isolated. Some of the residents of Williams County resisted seeing the county join the "faster" time zone to the east. The proponents of the change presented convincing arguments at public hearings however that there were strong social and economic reasons such

³ Despite spanning 60 degrees of longitude or five full time zones, all of China uses a single time zone - eight hours ahead of Coordinated Universal Time (UTC) based on the time zone running through Greenwich at 0° longitude.

as the location of jobs and services which favored them being located in the Eastern Time Zone. A decision was made to adjust the Eastern Time Zone boundary to include the Williams County on October 29, 2000, one of the very few times in recent years that such a change has been made.

Jurisdiction

The Williams County decision, like all time zone decisions in the USA was made by the US Department of Transport. This agency has the mandate to make such changes in consideration of the effects any boundary change would have on local and regional economies, especially transportation and communication. In Canada, time zones are regulated by provincial and territorial governments whereas in Mexico, time zones are regulated by the federal parliament and courts.

Productivity

There are many reasons that time zones affect the productivity of North Americans. One clear example concerns the vast majority of taxpayers. The public expect their governments to be as efficient as possible with their money. But consider this: How can the government service possibly be efficient when there are only 45 minutes out of each seven and a half hour government working day that offices in all four time zones are working simultaneously? Out of that same workday, a person in a government office in Washington, DC or Ottawa, Ontario has a maximum of two hours and thirty minutes in which to contact a colleague in any office in the Pacific Time Zone providing that person does not take lunch or coffee breaks!

When a federal employee arrives at work at 8:30 AM EST in Boston it is 7:30 AM CST in Birmingham and Houston, 6:30 AM MST in Denver and Boise and 5:30 AM PST in San Diego and Yakima. Office workers and business people in the Silicon Valley or Puget Sound are already out of bed, getting ready to commute to their offices where they will arrive by 6:30 AM PST just in time to hear the opening bell on the NYSE. Although the Internet and email have largely replaced the telephone for most routine communications and business transactions teleconferencing and web conferences, indeed all time sensitive issues still require that participants all be available for the same period of time, however.

Other jurisdictions

There are many other examples of countries that have chosen to deviate from the standard time zones. While Russia adheres to all of its eleven designated time zones it has made a compromise because the entire country is on permanent daylight saving time and is therefore an hour ahead of their actual zones all year 'round.

India which straddles two complete time zones has adopted the so called half-hour solution and averages its two time zones into one time zone, 5.5 hours ahead of Universal Coordinated Time (abbreviated as UTC). Australia uses three time zones - its Central Time Zone is a half-hour ahead of its designated standard time. Australia also divides the Central Time Zone into north and south segments for the purposes of Daylight saving time. Several other countries in the Middle East including Afghanistan and Iran also utilize half-hour time zones.

Another interesting example of what people are prepared to accept is presented by Chile which utilizes the time zone to the east of its designated standard time. It then adopts daylight saving time for an extended period each summer placing it a full two hours ahead of its designated standard time for much of the year. During WWII, in an effort to conserve energy for the war effort, England adopted what was termed double daylight saving time-two hours ahead of UTC which was then known as Greenwich Mean Time. This the same effect that the people of Chile now experience each year during their extended period of Daylight Saving Time.

New Time Zone Proposal

If China which is slightly wider than the contiguous USA can exist on one time zone and if India has learned to adapt to a single time zone instead of two, surely North Americans could modernize its system of keeping time by eliminating one of our several time zones. Public discussion and serious consideration by governments should be given to the proposal: *That the contiguous USA and Canada west of the Atlantic Time Zone be reduced to three time zones from four.* This would entail establishing a separate time zone for the states and provinces between the East Slope of the Continental Divide and the Pacific Ocean and two time zones from there to the western edge of the Atlantic Time Zone.

The province of Newfoundland and Labrador provide the key to rationalizing North American Time Zones. By moving their clocks ahead by 30 minutes they have created a separate Time Zone within the-

UTC Zone which is -3.5 UTC. If the Atlantic provinces move their clocks back one half hour from their normal time, they create a Time Zone which is 4.5 hours behind UTC. Progressively move clocks back by one half hour in the Eastern (-5.5 UTC) Central (-6.5 UTC) and Mountain Time (-7.5 UTC) zones and move clocks ahead by 30 minutes in the Pacific (-7.5 UTC), Alaskan (-8.5 UTC) and Hawaiian-Aluetian (-9.5 UTC) Time Zones right up to the International Date Line and -viola! an entire time zone disappears bringing us all that much closer together.⁴

Reducing Western Alienation:

The geography of North America is better suited to north-south commerce than with east-west commerce yet the continent is divided north to south into three separate countries—Canada, USA and Mexico. The geography of North America is characterized by the north-south oriented Pacific and Atlantic Coasts, the presence of a great north-south oriented navigable river system—the Mississippi and the great physical east-west barriers presented by the Continental Divide and the frozen Arctic Ocean. These factors plus a three to four hour time differential from east to west have historically resulted in communication and transportation difficulties, particularly for Canada and the USA leading to the phenomenon referred to as western alienation. The consolidation of the existing four primary time zones into three new time zones will bring all regions of both countries closer together and could possibly do more good for Canadian and American unity than any other single act.

Consolidate states into single time zones

Many states and provinces are currently divided into two or more time zones which is highly disruptive and inefficient for state wide communications, particularly in the government service. States such as North and South Dakota, Florida, Kentucky, Michigan, Nebraska, and Tennessee for example are separated into two time zones. The province of British Columbia includes three time zones when Daylight saving time is taken into account and two time zones when on standard time resulting in reduced productivity and confusion for many of its residents.

Increased Security

⁴ Another alternative- amalgamating the Pacific Time Zone with most of the Mountain time zone to create a single zone would add a full hour to the Pacific Time Zone and cause a two hour gap between time zones at some point to the west. Attempting to adjust for this by moving the change further west will only exacerbate the time zone difference with Alaska or the Aleutian Islands, Hawaii, and other Pacific Islands under the jurisdiction of the USA. This would reduce efficiency rather than increasing it.

Having more government employees working simultaneously would not only increase the efficiency of government agencies it could also potentially enhance national security. If all three NAFTA nations adopt the revised time zones, national security efforts could be enhanced in all three jurisdictions by increasing the number of hours that service employees such as firemen, policemen, and border patrolmen are on, duty simultaneously during the regular three eight-hour or two twelve-hour work shifts. Planning and coordinating daily and long term activities, including responses to regional, state or national emergencies could potentially be improved by the one hour net increase in communication time across the USA and Canada daily.

Other benefits

Amalgamating parts of the two existing time zones in the west into a single New Western Standard Time Zone would greatly assist someone trying to reach a family member for an urgent matter, or just to make friendly contact in that extra hour. A person arriving home from work at 6:00 PM in San Francisco or Portland or Vancouver who wants to contact a relative in the east has to get on the phone as soon as they arrive home without time to relax or else chance getting their party out of bed if they go to bed and rise early. When 92 year old Aunt Beulah in Kenosha, Wisconsin is trying to call her niece Carol Lee in Duncan, British Columbia to discuss some urgent family matter, the time differential will have been reduced from two to one hour making the chance of a successful contact during a mutually convenient time much greater, easing both their minds.

The New York Stock Exchange, the largest security exchange market in the world delays its daily opening to 9:30 AM partly because stock brokers in the west have got to get out of bed at 5:00 or 5:30 just to get to work at 6:30 AM PST in time for the opening bell of the NYSE. This is true for the NASDAQ and most other security exchanges in the Eastern Time Zone. These exchanges then close at 4:00 PM EST which is still only 1:00 PM on the west coast!

By saving an entire hour, the impact on participants and viewers of live sports events and late night telecasts from one coast to another would be enormous. Live national broadcasts from the east if broadcast at the regular programming times would allow people in the east to retire an hour earlier. The same is true of live broadcasts such as the Academy Awards broadcast from Hollywood which can keep people in the eastern seaboard up until after midnight on a work and school day. An extra hour's sleep for

just those North Americans who watch such programs would undoubtedly contribute to productivity and improve the gross national product all on its own!

The problem during national elections in the USA and Canada of trying to prevent voters in the west and the middle of our respective country from being influenced by results of voting in the east in the two or three hours after their poll stations have closed would be reduced significantly. Instead of requiring that easterners delay voting and westerners end voting early by as much as an hour respectively, there would be improved synchronization of the polling times.

Having to adjust to one less hour in continental travel would also reduce jet lag for busy travelers whether traveling on business or pleasure. This would certainly be a welcome prospect for our frequently flying national politicians governing our two countries which are thousands of miles across. It would also add an element of safety for tired and jet lagged airline employees mainly pilots and flight attendants who must remain alert at all times to deliver the utmost in customer comfort and safety.

Coincidentally, because of the existing alignment of their boundaries, realignment of the existing four time zones in the contiguous USA into three from four zones would make it possible to place all 48 states into more convenient and efficient unified time zones. Looking at the new time zones, one can see that overall, they line up more closely with the boundaries of the states and provinces that divide them than the existing zones. (See Map). Thus states such as Tennessee and Kentucky and others such as North and South Dakotas that now exist in separate time zones could be united into more unified zones.

How it can be done

What will it take? There is no cost for new machinery or no investment in more bureaucracies. All that is needed is goodwill on the part of a majority of Americans, Canadians and Mexicans to compromise by one half hour. Residents living in the New Atlantic, New Eastern and New Central time zones would set their clocks back half an hour from present while those in the New Western, Alaskan and Hawaiian-Aleutian time zones would advance their clocks half an hour. These changes would cause less disruption than the current practice of moving clocks an entire hour to accommodate Daylight Saving Time. In fact, consideration might even then be given to a half hour shift to accommodate Daylight Saving Time which would ease this annual inconvenience endured by nearly all of us for uncertain energy cost savings.

Perhaps, above all, it is important to maintain North America's competitive advantage by coordinating time changes within and between the major trading partners in NAFTA in order to harmonize and optimize our financial, industrial, transportation, and communications links. This could well be the most cost effective decision taken by government since the adoption of standard time.

The time has come to reexamine our existing system of time zones, before we adopt a longer period of daylight saving time beginning in April 2007 and before China and India begin to out-compete North America in the world marketplace.

R.A. Demarchi Biography

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Ray Demarchi is the retired British Columbia Chief of Wildlife. As a professional biologist he has traveled and worked in several foreign countries including Kenya, Germany, Venezuela and Guyana and has traveled throughout western and central Canada, Mexico, Costa Rica northern Europe and the USA including Alaska and Hawaii. His experience as a child growing up in a home that for half the year existed on two time zones because his father's employer, the Canadian Pacific Railroad only observed Standard Time and then as a British Columbia provincial wildlife biologist in a region of the province affected by three time zones, instilled an early interest in time and time zones. The idea of reducing time zones occurred to him on a trip across the southern USA when he and his wife left his father-in-law's home in Auburn, Alabama and drove on the freeways across Alabama, Mississippi, Louisiana and Texas in cruise control near the speed limit to arrive in Carlsbad, New Mexico two and a half days later before having to set his watch back one hour. He resides in the Pacific Time Zone and experiences the effects of jet lag for days when traveling between time zones with a differential of more than an hour.

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